

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLXXVI.

THE RELATIONSHIP OF EUPATORIUM CYRILI-NELSONII.

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Among the various new species of Eupatorieae described in recent years from Central America, Eupatorium cyrili-nelsonii A. Molina has proven to be the most important test of the revised generic concepts for the tribe in that area. A reading of the original description (Molina, 1978) was enough to indicate an unusual species was involved. More recently, through the kindness of Lic. Cyrilo Nelson, catedrático of the Universidad Nacional Autónoma de Honduras, Tegucigalpa, an isotype of the species has been made available to the U. S. National Herbarium. Considerations leading to a proper placement of the species are worthy of review here.

Eupatorium cyrili-nelsonii, as described by Molina (1978), is a subshrub with lanuginose stems, large opposite petiolate leaves, obovate to elliptical leaf blades rounded to obtuse at the base, and with large heads containing about 75 flowers. Without seeing material the characters suggest a member of the genus Bartlettina K. & R., a genus of many species in Central America. Examination of material shows some additional similarities to the latter genus such as the deciduous inner phyllaries common in the Critonioid-Hebeclinoid Eupatorieae and the broad lobes of the corollas. The characters of the achene, however, are not those of Bartlettina, but those of Peteravenia K. & R., another genus of about four species in Central America. The species is regarded here as a member of the genus Peteravenia in spite of the lack of cordate bases on the leaf blades which occur in the other known species of the genus.

Peteravenia is superficially similar to Bartlettina, and it has been placed in the same Hebeclinium Group in our recent review of the tribe (Robinson & King, 1977). Nevertheless, when first proposed, the genus Peteravenia (King & Robinson, 1971b) was not considered an immediate relative of Bartlettina (King & Robinson, 1971a, 1971c). The cordate leaf-base of Peteravenia was the most convenient character cited

in the original description, but it was only of tertiary importance. The character has failed once previously in the cordate leaf-base of Bartlettina tenorae (Arist.) K. & R. of Venezuela. Two characters that more properly delimit Peteravenia are the details of the pappus and the structure of the carpopodium, characters in which Eupatorium cyrili-nelsonii is clearly a member of the latter genus.

The pappus of Peteravenia is fragile with the narrow articulated bases of the setae well-separated from each other. In all species the tips of the setae are slightly but distinctly enlarged. Only Decachaeta DC., among the undoubted relatives of Hebeclinium DC., has the pappus fragile, and in none of the relatives of Hebeclinium are the setae so uniform in size and spacing.

The carpopodium of Peteravenia is sharply delimited in cellular structure, while that of Bartlettina intergrades with the longer cells of the upper achene wall, especially along the ribs. In the mature achene the carpopodium of Bartlettina extends upward along the bases of the ribs. In all the undoubted relatives of Hebeclinium the ribs of the achene intergrade below with the carpopodium although they are not always included in the callus formation. Even the narrow achene bases of Amolinia K. & R. have enlarged cells adjacent to the carpopodium which are similar to the more immature stages of Bartlettina.

One final factor can be considered in assessing the relationship of Eupatorium cyrili-nelsonii and Peteravenia. The traditional basis of the genus Hebeclinium was the pubescent receptacle. It is now known that pubescent receptacles occur in some genera of the Eupatorieae in totally different subtribes, and there are undoubted members of the Hebeclinium Group where receptacles are glabrous. Still, the single species of Amolinia and Erythradenia (B.L.Rob.) K. & R., all species of Decachaeta, almost all species of Hebeclinium, and most species of Bartlettina have receptacles pubescent. Only Guayania, of the Group, has receptacles glabrous. In Peteravenia, all species, including the new addition, have receptacles completely glabrous.

The additional distinctive species of Peteravenia confirms the essential features of the genus even as it violates what has been the most convenient distinguishing characteristic. As such, the genus shows greater diversity than previously expected, and the non-Hebeclinoid nature of the genus is further emphasized.

The review of chromosome numbers of the Eupator-

ieae (King et al., 1977) presented three chromosome reports for Peteravenia phoenicolepis (B.L.Rob.) K. & R., $n = 10$ twice and a $n = ca. 17$. An $x = 10$ is probably basic for the genus. Hebeclinium and the South American members of Bartlettina also have $x = 10$, but Decachaeta and the Central American species of Bartlettina have $x = 16$. A chromosome count for Eupatorium cyrili-nelsonii would be instructive. We predict a count of $n = 10$.

The following transfer is required:

Peteravenia cyrili-nelsonii¹ (A. Molina) R. M. King & H. Robinson, comb. nov. Eupatorium cyrili-nelsonii
A. Molina, Ceiba 22 (1): 39. 1978.

Literature Cited

King, R. M., D. W. Kyhos, A. M. Powell, P. H. Raven and H. Robinson 1977. Chromosome numbers in Compositae, XIII. Eupatorieae.

King, R. M. and H. Robinson 1971a. Studies in the Eupatorieae (Asteraceae). XXXVI. A new genus, Neobartlettia. Phytologia 21 (5): 294-297.

_____ and _____. 1971b. Studies in the Eupatorieae (Asteraceae). XXXVIII. A new genus, Peteravenia. Phytologia 21 (6): 394-395.

_____ and _____. 1971c. Studies in the Eupatorieae (Asteraceae). LXI. Additions to the Hebeclinium Complex with Bartlettina, a new generic name. Phytologia 22 (3): 160-162.

Molina R., A. 1978. Un nuevo Eupatorium de Honduras. Ceiba 22 (1): 39-40.

Robinson, H. and R. M. King 1977. Chapter 15. Eupatorieae - systematic review. in Heywood, V. H., J. B. Harborne and B. L. Turner, eds., The Biology and Chemistry of the Compositae. 437-485.

¹ Cyrilo Nelson informs us in a letter that the correct spelling of the species name should be cyrilli-nelsonii, and that this is to be corrected in a future issue of Ceiba.



Peteravenia cyrili-nelsonii (A. Molina) R.M. King & H. Robinson. Isotype of *Eupatorium cyrili-nelsonii* A. Molina, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



Peteravenia cyrili-nelsonii (A.Molina) R.M.King
and H.Robinson, enlargement of head.